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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,693	10/11/2001	Mikhail Boroditsky	03493.00311	6289
26652	7590	02/27/2007	EXAMINER	
AT&T CORP. ROOM 2A207 ONE AT&T WAY BEDMINSTER, NJ 07921			WANG, QUAN ZHEN	
			ART UNIT	PAPER NUMBER
			2613	
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	02/27/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	09/973,693	BORODITSKY ET AL.
	Examiner	Art Unit
	Quan-Zhen Wang	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 September 2006 and 07 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-11 and 14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434) and further in view of Tsushima et al. (U.S. Patent US 5,600,466).

Regarding claims 1 and 14, Chlamtac discloses a system (fig. 1) for providing high connectivity communications over a composite packet-switched optical ring network that includes a plurality of nodes, with at least one of the nodes comprising: an optical crossbar switch (fig. 1, bridge; and Section II B on page 5: "the core component of the bridge is a 2x2 space photonic switch", which having at least a first input directly connected to an incoming link of the network, a second input, a first output that is directly connected to an outgoing link of the network, and a second output) connected to said packet-switched optical ring network. Chlamtac differs from the claimed invention in that Chlamtac does not specifically teach that the system comprising a rapidly tunable laser for serially generating a plurality of packets, each packet being generated at a different wavelength. However, it is well known in the art to use a tunable laser for serially generating a plurality of packets. For example, Sasayama discloses to use a tunable laser for serially generating a plurality of packets (fig. 18). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a tunable laser for serially generating a plurality of packets, as it is

taught by Sasayama, into the system of Chlamtac in order to generate optical signals at different wavelength with fewer lasers. The modified system of Chlamtac and Sasayama further differs from the claimed invention in that Chlamtac and Sasayama do not specifically teach a stacker for stacking the plurality of serially generated packets to form a composite packet, and the stacker is interposed between the tunable laser and the crossbar switch. However, a stacker for stacking serially generated packets to form a composite packet is well known in the art. For example, Tsushima discloses a wavelength stacker (fig. 7, combination of delay element 14 and the DEMUX and combiner) for stacking a plurality of serially generated packets to form a composite packet (figs. 4a-4f). In addition, Chlamtac further discloses that the system is based on photonic slot routing and the “photonic” slot carrying information simultaneously on the various WDM channels” (page 2, first paragraph in the left column). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a stacker for stacking a plurality of serially generated packets to form a composite packet, as it is taught by Tsushima, in the modified system of Chlamtac and Sasayama and interposing the stacker between the tunable laser and the crossbar switch in order to form the “photonic slot” signals carrying information simultaneously on various wavelengths to be routed in the network.

Regarding claim 3, Tsushima further teaches that the stacker also operates as an unstacker to recover and re-serialize the plurality of packets from the composite packet (fig. 8).

Regarding claim 4, Chlamtac further teaches to use the crossbar switch to facilitate a composite packet in a photonic time slot that is being propagated on said packet-switched optical ring network being added to the packet-switched optical ring network at a destination node (*Paragraph B. Node and Bridge Architectures*).

Regarding claim 5, Chlamtac further teaches to use the crossbar switch to facilitate a composite packet being assigned a photonic time slot and added to the packet-switched optical ring network (*Paragraph B. Node and Bridge Architectures*).

Regarding claim 6, Chlamtac further teaches that the optical crossbar switch in the system is wavelength independent (a “space photonic switch” is inherently wavelength independent).

Regarding claim 7, Chlamtac further teaches that the packet-switched optical ring network is a point-to-point network (fig. 1).

Regarding claim 8, Chlamtac further discloses that the optical crossbar switch facilitates a composite packet in a photonic time slot bypassing a given node depending on a position of the optical switch (*Paragraph B. Node and Bridge Architectures*).

4. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., “Scalable WDM access network architecture based on photonic slot routing”, IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434) Tsushima et al. (U.S. Patent US 5,600,466) and Tsushima et al. (U.S. Patent US 5,600,466) and further in view of Mizrahi (U.S. Patent US 5,748,349).

Regarding claim 2, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach that the wavelength stacker further comprising a plurality of optical circulator and a plurality of FBGs connected to and sandwiched between the plurality of optical circulators and the plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators. However, incorporating optical circulator with Bragg grating to pass or prevent specific channels is well known in the art. For example, Mizrahi discloses an optical device comprising a pair of optical circulator and a plurality of FBGs connected to and sandwiched between the pair of optical circulators and the plurality of FBGs are cascaded and equally spaced between the pair of optical circulators (fig. 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical device, such as the one disclosed by Mizrahi, in the modified system of Chlamtac, Sasayama, and Tsushima to stack and unstuck optical signals in order to add and drop optical signals in the optical network.

Regarding claim 11, it is inherent that a wavelength not matching a wavelength of a fiber Bragg grating (FBG) bypasses the grating transparently.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434) Tsushima et al.

(U.S. Patent US 5,600,466) and Tsushima et al. (U.S. Patent US 5,600,466) and further in view of Mesh (U.S. Patent US 6,256,431 B1).

Regarding claim 9, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach that the dropped composite packet in the photonic time slot is further distributed to a plurality of user sites connected to the destination node by using Wavelength Division Multiplexing (WDM) techniques. However, it is well known in the art to distribute information to a plurality of user sites using WDM techniques. For example, Mesh discloses to distribute information to a plurality of user sites using WDM techniques (fig. 1; column 1, lines 33-36). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an information distribution method using WDM techniques, such as the one disclosed by Mesh, into the modified system Chlamtac, Sasayama, and Tsushima in order to send information to each designated individual users.

6. Claim 10 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlamtac et al. (Imrich Chlamtac et al., "Scalable WDM access network architecture based on photonic slot routing", IEEE/ACM Transaction on Networking, Vol. 7, February 1999, pages 1-9) in view of Sasayama et al. (U.S. Patent US 5,493,434)Tsushima et al. (U.S. Patent US 5,600,466) and Tsushima et al. (U.S. Patent US 5,600,466) and further in view of Adams (U.S. Patent US 6,748,175 B1).

Regarding claim 10, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach the dropped composite packet in the photonic time slot is further detected in parallel. However, it is well known in the art to detect composite packet in the photonic time slot in parallel. For example, Adams discloses to drop signals using a DMUX (fig. 2, DEMUX 235) and the signals can be inherently detected in parallel. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a DEMUX to drop composite packet in a photonic time slot, as it is taught by Adams, into the modified system of Chlamtac, Sasayama, and Tsushima in order to separate the multiplexed signals at different wavelengths and detect the information carried by each channel.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-37 of copending Application No. 09/973699. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the instant application are broader than the ones in copending Application No. 09/973699, *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982) and *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993), broad claims in the instant application are rejected as obvious double patenting over narrow claims of copending Application. For example, claim 1 of the present invention does not claim "a second composite packet propagating on said core optical ring destined to be dropped at said node for further distribution on said subtending system via said optical crossbar switch, an unstacker for serializing said second composite packet dropped at said node, said unstacker coupled to said optical crossbar switch, and a detector for distributing said serialized packets to a further destination by said subtending system." Therefore, claim 1 of the instant invention is broader than claim 1 of the copending Application.

Response to Arguments

9. Applicants' arguments are not convincing.

Applicants amended the claims after a non-final Office Action. Applicants' amendments of the claims had changed the scopes of the claims, even though some of the claimed limitations remain the claims. Because the scopes of the claimed invention had been changed, new search and new ground rejection were necessary. Therefore,

Applicants' arguments were moot in view of the new grounds of rejection. See MPEP Form Paragraph 7.40.

Applicants stated in the Remarks that "Clearly, if applicants' argument in the previous Office action are directed to other than the amendment to the claims, and are valid,, then the claims are patentable." This statement is not correct. Whether an application is patentable is determined by the merit of Applicants' claimed invention, not Applicants' arguments. Applicants further tried to invalidate the final rejections using examples of isolated elements A, B, C, and D. However, the fact is that the claimed elements are not isolated blocks, they have relationships. By deleting or adding elements, scope of the remaining elements could be changed because the change of relationships. For the instant application, the amended claim 1 included "... stacker is interposed between the tunable laser and the crossbar switch, through which the composite packet is injected into the network". It is crystal clear that the relationship of the stacker, tunable laser, and the crossbar switch had changed because of the newly added limitations. Therefore, Applicants' arguments are not convincing and the new search and consideration were necessitated by Applicants' amendments and the final rejection is proper.

Regarding claims 1, and 14, Chlamtac discloses a system (fig. 1) for providing high connectivity communications over a composite packet-switched optical ring network that includes a plurality of nodes, with at least one of the nodes comprising: an optical crossbar switch (fig. 1, bridge; and Section II B on page 5: "the core component of the bridge is a 2x2 space photonic switch", which having at least a first input directly

connected to an incoming link of the network, a second input, a first output that is directly connected to an outgoing link of the network, and a second output) connected to said packet-switched optical ring network. Chlamtac differs from the claimed invention in that Chlamtac does not specifically teach that the system comprising a rapidly tunable laser for serially generating a plurality of packets, each packet being generated at a different wavelength. However, it is well known in the art to use a tunable laser for serially generating a plurality of packets. For example, Sasayama discloses to use a tunable laser for serially generating a plurality of packets (fig. 18). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a tunable laser for serially generating a plurality of packets, as it is taught by Sasayama, into the system of Chlamtac in order to generate optical signals at different wavelength with fewer lasers. The modified system of Chlamtac and Sasayama further differs from the claimed invention in that Chlamtac and Sasayama do not specifically teach a stacker for stacking the plurality of serially generated packets to form a composite packet, and the stacker is interposed between the tunable laser and the crossbar switch. However, a stacker for stacking serially generated packets to form a composite packet is well known in the art. For example, Tsushima discloses a wavelength stacker (fig. 7, combination of delay element 14 and the DEMUX and combiner) for stacking a plurality of serially generated packets to form a composite packet (figs. 4a-4f). In addition, Chlamtac further discloses that the system is based on photonic slot routing and the "photonic' slot carrying information simultaneously on the various WDM channels" (page 2, first paragraph in the left column). Therefore, it would

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have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a stacker for stacking a plurality of serially generated packets to form a composite packet, as it is taught by Tsushima, in the modified system of Chlamtac and Sasayama and interposing the stacker between the tunable laser and the crossbar switch in order to form the "photonic slot" signals carrying information simultaneously on various wavelengths to be routed in the network.

Regarding claim 2, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach that the wavelength stacker further comprising a plurality of optical circulator and a plurality of FBGs connected to and sandwiched between the plurality of optical circulators and the plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators. However, incorporating optical circulator with Bragg grating to pass or prevent specific channels is well known in the art. For example, Mizrahi discloses an optical device comprising a pair of optical circulator and a plurality of FBGs connected to and sandwiched between the pair of optical circulators and the plurality of FBGs are cascaded and equally spaced between the pair of optical circulators (fig. 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical device, such as the one disclosed by Mizrahi, in the modified system of Chlamtac, Sasayama, and Tsushima to stack and unstuck optical signals in order to add and drop optical signals in the optical network.

Regarding claim 3, Tsushima further teaches that the stacker also operates as an unstacker to recover and re-serialize the plurality of packets from the composite packet (fig. 8).

Regarding claim 4, Chlamtac further teaches to use the crossbar switch to facilitate a composite packet in a photonic time slot that is being propagated on said packet-switched optical ring network being added to the packet-switched optical ring network at a destination node (Paragraph B. Node and Bridge Architectures).

Regarding claim 5, Chlamtac further teaches to use the crossbar switch to facilitate a composite packet being assigned a photonic time slot and added to the packet-switched optical ring network (Paragraph B. Node and Bridge Architectures).

Regarding claim 6, Chlamtac further teaches that the optical crossbar switch in the system is wavelength independent (a "space photonic switch" is inherently wavelength independent).

Regarding claim 7, Chlamtac further teaches that the packet-switched optical ring network is a point-to-point network (fig. 1).

Regarding claim 8, Chlamtac further discloses that the optical crossbar switch facilitates a composite packet in a photonic time slot bypassing a given node depending on a position of the optical switch (Paragraph B. Node and Bridge Architectures).

Regarding claim 9, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach that the dropped composite packet in the photonic time slot is further distributed to a plurality of user sites connected to the destination node by using

Wavelength Division Multiplexing (WDM) techniques. However, it is well known in the art to distribute information to a plurality of user sites using WDM techniques. For example, Mesh discloses to distribute information to a plurality of user sites using WDM techniques (fig. 1; column 1, lines 33-36). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an information distribution method using WDM techniques, such as the one disclosed by Mesh, into the modified system Chlamtac, Sasayama, and Tsushima in order to send information to each designated individual users.

Regarding claim 10, the modified system of Chlamtac, Sasayama, and Tsushima differs from the claimed invention in that Chlamtac, Sasayama, and Tsushima do not specifically teach the dropped composite packet in the photonic time slot is further detected in parallel. However, it is well known in the art to detect composite packet in the photonic time slot in parallel. For example, Adams discloses to drop signals using a DMUX (fig. 2, DEMUX 235) and the signals can be inherently detected in parallel. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a DEMUX to drop composite packet in a photonic time slot, as it is taught by Adams, into the modified system of Chlamtac, Sasayama, and Tsushima in order to separate the multiplexed signals at different wavelengths and detect the information carried by each channel.

Regarding claim 11, it is inherent that a wavelength not matching a wavelength of a fiber Bragg grating (FBG) bypasses the grating transparently.

In conclusion, all the claimed limitations are disclosed by the combination of the prior art, the rejections of claims 1-11, and 14 still stand.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
2/22/2007


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